



Evidence: What It Is and Where to Find It

How evidence helps you select an
effective intervention

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Welcome to the module, “Evidence: What It Is and Where to Find It.” This module will describe how using evidence can help you select an effective intervention.

Learning Objectives

By the end of the module, you will be able to:

- Describe evidence-based interventions
- Identify the approved sources of evidence
- Find evidence for your intervention
- Assess the utility of evidence you have located
- Use evidence for your intervention

This module will provide detailed information on evidence and evidence-based interventions. By the end of the module, you will be able to describe evidence-based interventions; identify the approved sources of evidence; find evidence for your intervention; assess the utility of evidence you have located; and use evidence for your intervention.

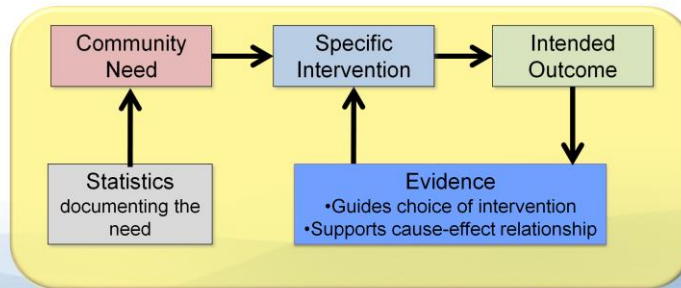
Module Overview

- **What is evidence?**
- **What are evidence-based interventions?**
- **What are sources of evidence?**
- **What are methods to assess evidence?**

This module will answer a number of questions:
What is evidence?
What are evidence-based interventions?
What are sources of evidence?
What are methods to assess evidence?

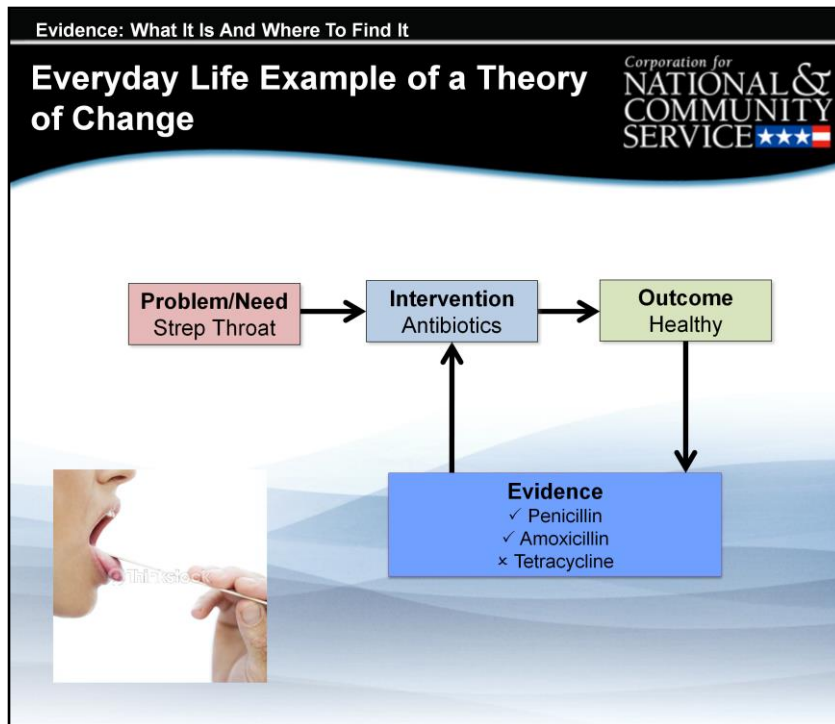
Theory of Change Elements

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As you will remember from the Theory of Change module, an intervention must address the identified community problem or need and be able to generate the intended outcome.

The Corporation for National and Community Service (CNCS) emphasizes that all national service programs should develop and implement evidence-based interventions to insure that scarce resources create the most positive change possible in local communities.



Let's revisit the example of a theory of change from everyday life.

If you have strep throat, the goal or outcome you want is to be healthy, that is, to get rid of the strep throat. Taking antibiotics is a great way to do that.

But every antibiotic is not equally effective with strep. Doctors know which antibiotics are most effective from past research and experience so they use that information to prescribe a course of action, in this case which antibiotic will be the best in fighting strep.

Penicillin and amoxicillin both are evidence-based interventions that have been proven very effective in fighting strep when taken a certain number of times a day for a period of time – making either of these a good choice.

Tetracycline is also an antibiotic, but it isn't effective for strep throat, though it will help with acne. So it would NOT be a good choice of intervention. Looking at the evidence helps avoid trial and error using scarce resources.

Key Points of Theory of Change

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- A theory of change identifies cause/effect
- The three elements of a theory of change; community problem/need, intervention, intended outcome are supported by data and evidence
- Data documenting community need should show scope, significance, and causes

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Evidence-Based Intervention

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Service activities that are **supported by research** to demonstrate a high likelihood that these activities will address the need, and result in intended changes.

Evidence demonstrates that the proposed intervention (design, dosage) is likely to lead to the outcome.



Evidence-based intervention is a term used by CNCS to describe service activities that are supported by research, indicating a high likelihood that these activities will address the need, and result in intended changes. In other words, evidence should show the intervention is likely to work.

Non-evidence-based interventions are those that have no track record of data and it is unknown whether they can produce the desired change.

Evidence

EVIDENCE: Information that supports your choice of a specific intervention and its ability to produce your intended outcome.

It is NOT enough to just say “we believe” our intervention is “likely” to be successful. You need to justify your choice with evidence.



Evidence provides a sound basis to choose an intervention to meet a specific community need. Once you know what change you intend to make (your intended outcome), then evidence helps you determine the best intervention to use to make it happen.

It is not enough to just say “we believe” an intervention is “likely” to be successful. You need to justify an intervention with evidence. While “unproven” strategies or interventions may be valid, a lack of evidence makes it harder to know if it’s a good investment of resources. CNCS is choosing to invest in proven strategies.

Lessons from the Evidence

Evidence provides a reality check for theory of change elements

- For new programs:
 - What is the recommended design (specific program activities) and dosage (frequency, intensity, and duration) to achieve an intended outcome?
- For existing programs:
 - Is there sufficient evidence for the intervention to continue its use?
 - Based on the evidence, are there modifications to the intervention that should be considered to have greater impact?
 - Do you need to choose a new intervention?

Evidence provides a reality check for your theory of change. Therefore, all programs need to find and use evidence.

Some of new are planning or implementing a new programs. In this case, evidence helps you choose an appropriate intervention design (the specific activities provided) and dosage (frequency, intensity, and duration) based on your intended outcome.

Others of you are from existing programs and are either trying to justify an intervention you have already been using or make modifications to an intervention to improve its effectiveness. As you investigate the evidence for your intervention, some of you may find you will need to choose an entirely new intervention.

The information about evidence presented in this module – where to find, assess, and use it – is equally applicable no matter which scenario best fits your program.

Evidence Basis for Interventions

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Possible sources of evidence include:

- Your past performance measurement outcome data
- Results from an impact evaluation of your program
- Research that documents the outcomes of similar programs
- Impact evaluations that document outcomes of similar programs



You should look for evidence that program models or interventions like yours have been successful. CNCS has identified four possible sources of evidence that can help you make the case that your intervention is likely to achieve the desired result. The various National Service Programs may have different requirements concerning the use of evidence so be sure to check the appropriate notices of funding opportunities for details.

The four sources of evidence that CNCS has identified are:

Your past performance measurement outcome data;
Results from an impact evaluation of your program;
Research that documents the outcomes of similar programs;
Impact evaluations that document outcomes of similar programs.

Any of these sources that collected data using rigorous methodologies can be used. However, it makes for an even stronger case if you have more than one type of evidence to present that show similar findings.

Now let's look at each of these sources in more detail.

Evidence Source: Your Performance Measurement Data

Past performance measurement outcome data:

- What do your past performance measurement results tell you?
- Can you show positive outcomes over time?



One source of evidence is your own past performance measurement data on outcomes. Past outcome findings from performance measurement do not show causality but they do provide data about whether or not a change occurred.

Therefore, while outcome data from performance measurement can't show that the change occurred because of your specific intervention, it is useful because it shows the intended result was achieved. If you are looking at your past performance data as evidence for an intervention, consider:

What do your data tell you? For example, did you achieve your intended outcome?

Do you have multiple years of outcome data you can aggregate? Using data from multiple years makes a stronger case for the effectiveness of your intervention. If you have it, use it!

Evidence Source: Your Program Evaluation

Results from impact evaluation of your program:

- Is it an impact evaluation?
- Does it document change?
- Does it clearly show that your intervention is what caused the change?



Another source of evidence can be the results of an impact evaluation done on your project or program: Impact evaluation uses rigorous methodologies in order to prove that the intervention caused the outcome.

So the key questions to ask are, if you have an impact evaluation, does it document change? And, does the evaluation clearly show that your intervention is what caused the change?

A process evaluation, on the other hand, looks at how your program was implemented and maybe at benefits it provided sites or beneficiaries, but it does not assess outcomes or causality. So as evidence to support your intervention, a process evaluation does not help – it needs to have been an impact evaluation.

Evidence Source: Research Studies and Evaluations

- **Research studies:** Focused on increasing knowledge or understanding of a particular group, problem or issue
- **Impact Evaluations:** Look at intervention success and outcomes produced

The first two sources of evidence we have just discussed come from your programs. The next two sources to be covered are research studies and impact evaluations from other programs.

Research studies tend to focus on increasing knowledge or understanding of a particular group, problem or issue. Impact evaluations look at how well specific programs worked and what outcomes were produced by an intervention.

It is important to remember that these two sources provide evidence about the interventions used by other organizations. Therefore you need to assess whether certain criteria are met – before you use it.

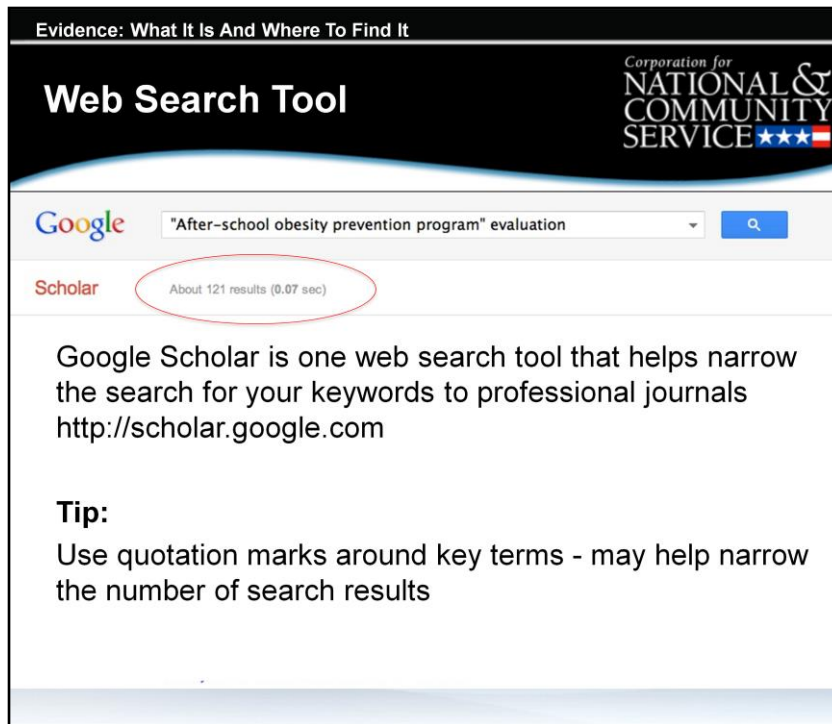
Evidence Source: Research Studies and Evaluations

Sources of Strong Evidence

- University or research organizations (national or local)
- Known professionals/ experts in the field
- Similar sounding programs/ descriptions
- Articles that review multiple studies (meta studies)



When looking for evidence from other organizations, be on the look out for articles or reports from a university, research organizations, or known professionals or experts in the field of interest. Also be on the lookout for articles about similar sounding programs or that review multiple studies, also known as “meta-studies”



Now let's talk about where to look to find the evidence from other programs. A first step in looking for evidence is doing a web-based search. One option is to use Google's Scholar tool at <http://scholar.google.com>

Google Scholar is a great shortcut to finding articles from peer reviewed, professional journals on high quality research studies and impact evaluation reports, without having to surf through many general documents that won't help you find the evidence you are looking for.

You may need to try a few variations on search terms to see what yields the most useful articles. The more specific you are when choosing your terms, not only will you get better results, you will save time. For example, using "afterschool obesity prevention program evaluations" as your search term will yield fewer and more relevant results than using more general terms like "girls health programs."

One tip is using quotation marks around your primary search terms as this also helps narrow your search. You may want to try it both ways – with and without quotation marks – to see which yields the best list of articles.

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Search Result Questions

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Google "After-school obesity prevention program" evaluation

Scholar About 121 results (0.07 sec)

Articles

Any time Since 2012 Since 2011

An after-school obesity prevention program for African-American girls: the Minnesota GEMS pilot study.
M Story, NE Sherwood, JH Himes, M Davis... - Ethnicity & ... 2003 - ukpmc.ac.uk
... evaluation results demonstrated that the program was well attended, and well received, by girls and parents. CONCLUSIONS: An after-school obesity prevention program for low-income African-American girls is a promising model for future efforts. Formats. ...
Cited by 148 - Related articles - Cached - BL Direct - All 4 versions

Is the article:

- Relevant?
- Compelling?
- Up-to-date?
- Objective?

Next, as you look through the search results, if a listing looks promising follow the link to the article. Use the criteria discussed earlier to see if the study suits your needs.

For example, when looking for evidence to support an afterschool obesity prevention intervention for girls, here's how the criteria would be applied.

- First, does the article about an evaluation article appear relevant? As potential evidence for an afterschool obesity prevention program, this article does appear relevant at first glance as the intervention, beneficiaries, and results seem similar.
- Is it compelling and does it indicate a significant result? Get a clear understanding of the results they got before choosing the article as evidence.
- Is the evidence up-to-date? The article is fairly recent – from 2003. However something more recent might be better, but this article is worth reviewing anyway.
- Does the evidence appear objective? It does because the evaluation was done by the University of Minnesota, a large state university with a specialized School of Public Health. The article authors were external evaluators – they were not involved in running the program and had no stake in the results.

So, based on these four criteria, this article seems like it could provide useful evidence. You will likely find several studies which meet these criteria. But, before choosing one to use as evidence, take a careful look at the intervention specifics – the design and dosage – as well as the results achieved, and how that aligns with your theory of change.

Assessing Evidence

Criteria include:

- **Relevant:** Cites comparable intervention with similar beneficiaries and results
- **Compelling:** Persuasive, shows clear likelihood of success
- **Up-to-date:** Recently published or most recent available
- **Objective:** Source with no stake in outcome and published in a peer reviewed journal or by credible organization

You need to be sure that the intervention that was studied in the article or report is relevant. Was the intervention similar in design, dosage, the type of beneficiaries served, and outcome achieved? If not, it may not be relevant enough to use as evidence for your Theory of Change. Evidence that is not relevant would not refer to the same population or may not be a comparable intervention (for example, participants receive intensive ongoing case management services as opposed to a one-time assessment and referral session).

Is the evidence compelling? Is it persuasive and does it indicate the intervention produced a significant result?

Is the evidence up-to-date? That is, what it published recently and has it utilized current thinking around the issues? There is no specific recommendation for what is considered “recent.” The intent here is to find timely information that is as recent as possible so it will reflect the latest thinking about what works.

Is the evidence objective? Is it from a source that had no stake in insuring a positive outcome and was published in a peer reviewed journal or as a research study from a credible organization? Peer reviewed journal articles are great sources of information because they have been screened and selected based on their merit by other professionals in that field.

Evidence Continuum

Causality

Causality		
Low		High
Preliminary	Moderate	Strong
<ul style="list-style-type: none"> Doesn't show causality Outcome results from performance measurement 	<ul style="list-style-type: none"> Show causality, compares intervention recipients to non-recipients Results from studies/impact evaluations Comparison groups: Quasi-experimental Design 	<ul style="list-style-type: none"> Show causality, compares intervention recipients to non-recipients Results from studies/impact evaluations Randomly-assigned control groups: Experimental Design

Another consideration when reviewing evidence is where it lies along the CNCS evidence continuum. The primary distinction between preliminary evidence and moderate or strong evidence relates to causality. If the evidence shows the intervention caused the outcome it is considered stronger.

Performance measurement outcome results can only show that a change occurred and that the intended outcome was achieved. Performance measurement is not able to prove that the intervention caused the change. Therefore, outcome results are considered by CNCS to provide “preliminary” evidence.

Impact evaluations and research studies use rigorous data collection methodologies that go beyond just documenting that a change occurred to determine causality. They are designed to collect data from people that received the intervention, as well as from similar people that did not. This allows a comparison between the two groups and sheds light on causality.

In some cases, researchers and evaluators are able to randomly assign people to one of the two groups – those that receive the service and those that don't. This is called an experimental design and is considered top of the line among data collection methodologies. It is highly rigorous and can produce very high quality data documenting that the intervention caused the outcome. Studies using random assignment are considered strong evidence.

However, when unable to assign people randomly to groups, researchers often use comparison groups – groups of people similar to those receiving the service – as a way to get at causality. This is called a “quasi-experimental design.” Use of comparison groups is a rigorous data collection methodology, but because such studies don't use random assignment, they are considered moderate evidence on the continuum.

Evidence Continuum

Shape Up: afterschool obesity prevention program

Preliminary	Moderate	Strong
Performance measurement shows that 75% of girls age 14-16 participating in the Shape Up program made more healthy food choices	A 2005 impact evaluation by internal evaluators (using a quasi-experimental design of girls participating in a similar program to Shape Up) found that after 12 weeks, the girls in the program made 50% more healthy food choices than the comparison group.	A 2010 impact evaluation of the GEMS program by University of MN using experimental design/ random assignment found after 12 weeks, the girls in the experimental group made 50% more healthy food choices than control group girls

Here's an example of what evidence might look like along the continuum for an afterschool obesity prevention program called Shape Up.

Preliminary evidence is from the program's own past performance measurement findings: the program found that 75% of girls participating in the Shape Up program made more healthy food choices. This evidence is considered preliminary because it relies on performance measurement data on outcomes so while it shows a change occurred we can't be sure that change happened because of the intervention.

At a moderate level along the evidence continuum, you might use something like this: A 2005 impact evaluation using a quasi-experimental design of girls participating in a similar program to Shape Up, found that after 12 weeks, the girls in the program made 50% more healthy food choices than the comparison group. This is considered moderate because it used a quasi-experimental design which means girls were not put into groups randomly. So the data are considered less rigorous than if random assignment had been used.

Strong evidence might look like this: A 2010 impact evaluation of a similar program by University of Minnesota using experimental design with random assignment found after 12 weeks, the girls in the experimental group made 50% more healthy food choices than the girls in the control group. This evidence is considered to be on the strong end of the continuum because it is used random assignment or an experimental design.

The goal is to find the strongest evidence possible to justify your intervention choice. However, sometimes even after spending the necessary time to do online searches and read articles, you will only be able to access preliminary evidence for your theory of change. In that case, use whatever strength evidence you were able to find to show the evidence-basis

for your intervention.

Key Points Summary

- The term “evidence-based intervention” describes service activities that are supported by research to indicate a high likelihood that the intervention will address the need and result in intended outcomes.
- Evidence is information or documentation that a specific intervention (design and dosage) will produce your intended outcome.

Here is a summary of the key points for this module:

The term “evidence-based intervention” describes service activities that are supported by research to indicate a high likelihood that the intervention will address the need and result in intended outcomes.

Evidence is information or documentation that a specific intervention (design and dosage) will produce your intended outcome.

Key Points Summary

- The four sources of evidence that CNCS has identified include:
 - Past performance measurement data
 - Results from a program impact evaluation
 - Research studies that document the outcomes of similar programs
 - Evaluations that document outcomes of similar programs
- When assessing evidence, check to be sure it is relevant, compelling, up-to-date, and objective.
- The strongest evidence clearly proves that the intervention caused the positive change by using an experimental design.

The four sources of evidence that CNCS has identified include:

Past performance measurement data

Results from a program impact evaluation

Research studies that document the outcomes of similar programs

Evaluations that document outcomes of similar programs

When assessing evidence, check to be sure it is relevant, compelling, up-to-date, and objective.

The strongest evidence clearly proves that the intervention caused the positive change by using an experimental design.

Additional Resources



CNCS Priorities and Performance Measures:

<http://www.nationalservice.gov/resources/npm/home>

Program-Specific Notices of Funding Opportunities and Application Instructions:

<http://www.nationalservice.gov>

This concludes the Evidence Module.

For more information on CNCS national performance measures, go to <http://www.nationalservice.gov/resources/npm/home>.

Also see <http://www.nationalservice.gov> for more information on Program-specific notices of funding opportunities and application instructions.